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February 26, 2003

OSWER Docket
U.S. Environmental Protection Agency
EPA West Building, Room B102
1301 Constitution Avenue, NW
Washington, DC

Attention: Docket ID No. RCRA-2002-0033

Dear Sir/Madam:

Attached please find the Comments of the RCRA Corrective Action Project on the "Draft Guidance for Evaluating the Vapor Intrusion to Indoor Air Pathway from Goundwater and Soils (Subsurface Vapor Intrusion Guidance)."

If you have any questions about the filing, please call me at 202.739.5150. Thank you for your courtesy in this regard.

Sincerely,

John Quarles

COMMENTS OF THE

RCRA CORRECTIVE ACTION PROJECT (RCAP)

ON THE

"DRAFT GUIDANCE FOR EVALUATING THE VAPOR INTRUSION TO INDOOR AIR PATHWAY FROM GROUNDWATER AND SOILS (SUBSURFACE VAPOR INTRUSION GUIDANCE)"

DRAFT GUIDANCE

[FRL-7414-4]

67 Fed. Reg. 71,169 (November 29, 2002)

Docket No. RCRA-2002-0033

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Dated: February 26, 2003

RCRA CORRECTIVE ACTION PROJECT
COMMENTS TO EPA ON VAPOR INTRUSION GUIDANCE

Docket ID No. RCRA-2002-0033

These comments are being submitted by the RCRA Corrective Action Project (RCAP) on the Indoor Air Vapor Intrusion (IAVI) Draft Guidance issued by EPA on November 26, 2003. The current members of RCAP are Ashland Inc., Bayer Corporation, Bethlehem Steel Corporation, BP, ChevronTexaco, Delphi Automotive Systems, E.I. duPont de Nemours & Co., Inc., ExxonMobil Corporation, General Electric Company, General Motors Corporation, IBM Corporation, Pfizer Inc., Sunoco Inc., U.S. Steel, and United Technologies Corporation.

1. Introduction

We would like to point out that, in comparative terms, this field of regulation is a relatively new arena. Although the pathway has been addressed for many years (the UST program has had guidance for more than 5 years), substantial attention to it by both government and industry for other programs has occurred only during the past few years. We recognize and applaud that EPA has made numerous efforts in developing this guidance to emphasize flexibility and practicality. Nonetheless, particularly with respect to ongoing efforts by both industry and regulatory agencies to meet the 2005 GPRA goals, the issuance of this guidance and the directive to resolve IAVI issues on an accelerated basis will present a colossal challenge on all sides.

2. Uncertainties and Work-Load Issues

Although EPA has issued the Guidance with instructions to begin using it at once, EPA also has acknowledged that in doing so it is opening a new field of regulation, and EPA has labeled the guidance as "draft." Informally EPA staff have indicated that the Agency does not expect to issue a revised "final" guidance for at least a year and probably two. This approach is realistic, but it does point up that this is a field of uncertainty, with a staggering list of unresolved questions. As more experience accumulates, that list will grow before it begins to shrink. Meanwhile, everyone grappling with practical problems will be handicapped by the fact that these issues must now be addressed but it is not clear how.

Compounding this problem of uncertainty as to what the final requirements will be is the limited number of people working in the field for both government and industry who have in-depth expertise in this area. Many of those who will be working out specific issues will be facing them for the first time. The EPA conferences in San Francisco, Dallas and Atlanta have made a good start toward bringing the field troops up the learning curve, but clearly that is only a start. In addition to obvious questions of what ground rules apply, there will also be constant questions of who decides them -- the Owner/Operator, the Project Manager, a senior regulatory official in the Region or the State, or Headquarters. Inevitably, there will be a long sorting out process.

There will also be the problem that to perform the analysis and complete the forms actual site-specific data will be needed. For example, in answering Question #1 under the EPA three-tier analysis, it is necessary to state whether there are "chemicals of sufficient volatility and toxicity known or reasonably suspected to be present in the subsurface." If no, the analysis is finished. If yes, the analysis moves to the next question. But, "[i]f sufficient data are not available, go to the Summary Page and document the need for more information. After collecting the necessary data, Question 1 can then be revisited." There are **ten** points in the analysis where a similar fork is confronted, with a possible need to stop the process and collect further data. In many instances collection of such data may take months, or longer, and in a number of instances this matter may also raise policy issues or other questions that will cause a further detour.

3. Overly Conservative Guidance

We have fundamental and serious concerns that the Guidance is unduly conservative. This appears to result from the interaction of two elements. First, the large number of elements of uncertainty discussed above create innumerable points in the process where answers that are both precise and reliably accurate are not available. In order to avoid the risk of missing a problem, EPA has explicitly chosen the more conservative answer to such uncertainties. It has, in effect, chosen to run a substantial risk of false positives rather that to take the approach that might generate a false negative. There are many points throughout the Guidance package where EPA has stated clearly that it has selected conservative assumptions.

A point of major importance where this conservative approach occurs is in the screening numbers set forth in Tables 2a, b, and c and 3a, b, and c. These table are central to the whole analytical process, since they not only provide the initial test to govern whether it is necessary to move on to Questions 4, 5 and 6, but also those numbers provide the reference criteria to determine whether through use of site-specific factors and/or modeling one can reach a conclusion of no problem. Thus the conservative nature of the screening numbers combines (or "multiplies") with the conservative assumptions embedded in each one of the ground rules for resolving Questions 4 through 6 to aggravate the conservative tilt of the overall process. This is conceptually referred to as compounding conservatism.

To restate this point, the Draft Guidance specifies default model inputs that are overly conservative and difficult to measure directly on a site-specific basis. Thus, these screening level default values would be carried over to the site-specific assessments according to the Draft Guidance. As an example, the building air exchange rate that was selected from the lower end of the distributions is essentially the 10^{th} percentile of the range for the winter values in the warmest climatic area. That is, not only do 90 percent of the homes in the warmest climatic area have a higher air exchange rate during the winter, almost every home would have even higher air exchange rates for the rest of the year. This results in overly conservative estimates of long-term risks because it combines short-term concentrations with toxicity data based on long-term exposures. However, obtaining site-specific building ventilation rates consistent with the entire year is difficult, if not impractical, to obtain for most buildings.

Likewise, the default value for Q_{soil} is overly conservative for any building with less than 1.0 m of coarse-grain material beneath them. It is unlikely that this much non-native coarse-grain fill would be added to residences in areas with tighter native soils. Q_{soil} is also difficult to measure on a site-specific basis.

Another point concerns background. Since EPA has acknowledged the role of background indoor air concentrations, values in these tables should provide a mechanism for having a "floor" for the indoor air target that is background if background is greater than the risk level. This would be analogous to the EPA provision for a floor on groundwater values at the MCL levels to avoid the awkwardness of screening values below the MCLs.

4. Applicable Standards

In final analysis, the governing issue involved here is whether intrusion of vapors from migration of groundwater is causing levels of contaminants in indoor air that exceed safe levels. Areas of concern in this regard include both occupational areas (primarily within the industrial plants) and residential areas (primarily in neighboring homes affected by off-site migration of contaminated groundwater). A major issue raised by EPA in formulating this Guidance was whether in the industrial/occupational areas the applicable standards used to determine compliance should be based on the EPA risk analysis under the three-tier, six-question framework or based on the Permissible Exposure Limits (PELs) established by OSHA under the Occupational Safety and Health Act. RCAP believes strongly that the proper answer to that choice is to use the OSHA PELs, and that a contrary answer by EPA would have raised severe problems of confusion and contradiction as to the overlap between the EPA and OSHA standards.

We recognize that EPA did make a clear choice that in the occupational areas governed by PELs those standards should control and the EPA risk analysis would not apply. Despite the fact that the EPA Guidance answers that question in the manner we believe is right, we still emphasize this issue, with the request that EPA reinforce this element of the Guidance in all subsequent communications to staff, states and the general public to assure that the Guidance is followed uniformly on this matter.

5. Sampling and Modeling

Several important questions arise as to the specific direction of the Guidance on methodology to be used in applying site-specific factors affecting attenuation, in conducting sampling, and in performing modeling. As one example, the Guidance strongly urges that sub-slab sampling be carried out by drilling through the basement floor, a practice likely to generate severe resistance and controversy from neighboring homeowners. EPA needs to remain flexible and work with industry to resolve innumerable issues of this nature that will arise in regard to such work.

6. Wild Cards

There are two points contained in the Guidance document that appear not yet to have attracted significant attention, but which have the potential to cause serious disruption in the implementation of this program. They are as follows:

A. Future Development -- Question #2 addresses one of the threshold issues of whether groundwater contamination has migrated to areas where it might cause unacceptable indoor air inhalation risks. The guidance (at page 16) provides for using a general standard that such risks need to be evaluated if significant levels of contaminants exist within 100 feet laterally or vertically from inhabited buildings or "areas of concern under future development scenarios."

The standard of 100 feet from inhabited buildings raises certain questions of reasonableness, but the inclusion of areas of potential future development threatens to open the floodgates to protracted controversy and inappropriate results. This feature invites open-ended conjecture and speculation. There need to be tighter criteria for when, if ever, imaginary buildings should be incorporated into this analysis. There may also be a need to consider whether institutional controls should be established to assure that any future developer takes the necessary actions to prevent vapors from getting into any buildings that are constructed.

B. Concentrations Below Detection Limits -- In setting forth generic target media-specific screening concentrations in Tables 2a, b, and c, EPA applied a "cap" so that in any case where the calculated concentration would have been below drinking water MCLs they held the value to equal the MCL, thus avoiding a result that would have struck many as irrational. However, a related problem arises with respect to levels that may be below the detection limit for certain constituents. EPA's Guidance (at page 27) states that "If the detection limit for any constituent of potential concern is above its target screening level, we recommend the user continue the evaluation as though the target level is exceeded." What this evidently means is that if one of those substances is brought into the analysis, the owner/operator is caught in a "Catch 22." Since by definition it will not be able to detect and quantify concentrations at a level that would demonstrate no problem, it must proceed as though it <u>may</u> have excessive concentrations, but as it proceeds through subsequent steps in the analysis there is no suggestion as to how it can achieve a favorable ultimate determination.

7. Environmental Indicator Problem

When one considers all of the complexities and practical difficulties of working through this vapor intrusion process -- even though EPA has attempted to provide flexibility -- it seems impossible to complete the process and reach favorable determinations in time to achieve the present schedule set forth in EPA's commitments to complete Environmental Indicator determinations by 2005. One big unknown is how many RCRA facilities will need to go through the full IAVI process, and how many of them are covered by the Agency's GPRA commitments. Being realistic as to the vagaries and the demands of the vapor intrusion process, it seems unlikely that facilities will be able to complete the full course in less than several years. Few if any of the facilities in that category would be able to satisfy the CA 725 EI determination for human health by the GPRA cutoff date of December 31, 2005. If substantial numbers of facilities do fall in that category, it will likely preclude EPA from achieving these GPRA goals.

Given the emphasis that EPA has placed on GPRA, the need for EPA to address this potential conflict should be given top priority attention.

In this regard, the deliberate conservatism of the Guidance aggravates the problem. The fact that for each variable EPA has opted for the protection of worst case assumptions tilts the whole analysis in the direction of false positives. For ultimate cleanup, that may not be a problem, since the Guidance states clearly on page one,

> This guidance is not intended to provide recommendations on how to delineate the extent of risk or how to eliminate the risk, only to determine if there is a potential for an unacceptable risk. (Emphasis added.)

There is no similar safety valve with respect to EI determinations. Under the terms of the Guidance, it appears that the only way to cure a failure to satisfy the criteria set forth in the Guidance would be to install controls adequate to meet the criteria, even if such controls are not needed to provide protection against health risks.

Conclusion -- We appreciate the opportunity to submit these comments. The RCRA Corrective Action Project looks forward to continued cooperation with EPA to work on specific questions as they may arise under the Guidance in the future.